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KERATOCONUS AND ECTOPIA LENTIS.*

REPORT OF A CASE PRESENTING BOTH CONDITIONS IN BOTH EYES.

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Keratoconus and ectopia lentis are rare enough to make a case in which both conditions are present in the same person of sufficient interest to chronicle.

Mrs. E., aged 27, consulted me because of poor vision which made difficult her work, that of a stenographer. She stated that her vision had always been poor, as was that of her mother and a number of her relatives, one or two of whom had become practically blind. She could give no information as to the nature of the ocular trouble of either her mother or any of her relatives. The patient complained of no pain in her eyes or head but said she was unable to hold a good position on account of not seeing accurately and clearly. She had been wearing the same glasses the past ten years and had been told by an oculist whom she consulted recently that no improvement could be made on them. She was wearing O.D.+7.50 D. C. ax. 155; O.S.+11.50 D.C. ax. 15, and with these she could read 18/30—with the right eye and 18/96 with the left. The vision without glasses was: V. O.D.=12/200; V. O.S.=2/200. She could read Jaeger No 1 at 2 inches with the right eye and at 1 inch with the left, without glasses. An attempt was made to measure the corneal astigmatism with the ophthalmometer but this could not be done on account of the

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great curvature. Whereas the shortest radius of curvature measured by my ophthalmometer is 6.8 mm., that in the meridian of least curvature of the patient's better eye appeared to be between one and two mm. less than this, while in the worse eye it seemed to be only about half as much as the lowest measurement of the instrument. The average radius of corneal curvature is about 7.8 mm.; that of my patient's right eye was, as nearly as I could guess, about 5.5 m.m., and that of the left eye 3.5 to 4 m.m. Inspection of the eyes showed the corneæ of both eyes markedly conical, that of the left eye being more so. Under homatropin cycloplegia the patient accepted: O.D.—7.00 D.S.—6.00 D.C. ax. 180, giving her 18/30+ vision, and O.S.—24.00 D.S.—8.00 D.C. ax. 180, giving 18/96 vision. Ophthalmoscopic examination showed that in addition to the conical corneæ the crystalline lenses were displaced directly downward, leaving the upper part of the eyes, corresponding to a little less than half of the pupils, aphakic. Both lenses were perfectly clear, there being an absence of the dark ring that is generally found, corresponding to the edge of the lens. After the cycloplegia had passed off her refraction and vision appeared to be: V.O.D. w.—7.50 D.S.—8.00 D.C. ax. 180=18/24—; V.O.S. w.—24. D.S.—8.00 D.C. ax 180=18/96. With this correction she could read Jaeger No. 1 with either eye, up to 4 inches. Her orientation was very poor with them, however. Through the aphakic part of the eyes the following result was obtained: V.O.D. w.—1.50 D.S.—+8.00 D. C. ax. 155=18/19—; V.O.S. w.—3.00 D.S.—+8.00 D.C. ax. 15=18/75. With the plus cylinders alone she could read with the right eye 18/30+ and Jaeger No. 1 at 6 inches, and with the left eye 18/96+ and Jaeger No. 2. These were quite comfortable and, her orientation being good with them, they were prescribed. With the new lenses she seemed to get along better, doubtless due more to the proper adjustment of the lenses than to the change in their strength, the old ones being very badly out of adjustment. The patient did not complain of diplopia, which is common in cases of ectopia lentis, but did complain of things not being clear until she looked at them for an instant and also that frequently objects were not where they appeared to be at first, both conditions, doubtless, being caused by the dislocation of the lenses, there being too much difference in the refraction of the two different parts of the eye to produce distinct diplopia. The patient's vision in her right eye is remarkably good, considering the de-

gree of conical cornea together with the dislocation of the lens. Her preference in the use of the aphakic part of the eye is in harmony with the general rule of patients having ectopia lentis.

My patient's ability to read ordinary print with her distance correction of the aphakic portion of the eye and even to read as fine print as Jaeger No. 1 at 6 inches distance with +1.50 D.S. added to her distance correction of the right eye, suggests some accommodative power of the aphakic eye. In an article published in the May, 1905, number of the *AMERICAN JOURNAL OF OPHTHALMOLOGY*, Dr. J. W. Charles discussed this subject and gave the views of numerous writers as to the manner in which this apparent accommodation is brought about. I do not know that anything more definite has been presented on the subject since then. Turning of the head and tilting of the lenses seemed to be excluded in my case. Judging from the information given by the patient and from the old glasses which she had been wearing for ten years, little or no change had taken place in her eyes during that period of time, and hence there was no demand for any interference for either condition, further than the careful adjustment of the proper lenses.

Concerning the ætiology of keratoconus, nothing definite seems to be established. It is known that there is a marked thinning of the cornea at and near the apex of the cone (Salzman finding the corneal thickness to be less than one-fifth of a millimeter in an eye examined microscopically by him) but what condition is responsible for this thinning is still unknown. Some constitutional dyscrasia is generally believed to be present, although there are records of cases occurring in perfectly healthy country girls in whom no constitutional cause could be found. Fox states that the condition is found most frequently among Mongolians, especially in Chinese. Pagenstecher's observations incline him to the theory that there is a congenital disposition toward conical cornea. Salzman, Tweedy, and others hold the same view, while Wicherkiewicz contends that it is not always so. Increased intraocular tension is believed by some to be a causative factor, but others and perhaps the majority of observers believe that when such increase of tension is present it is an incident resulting from the keratoconus rather than the cause of that condition. Conical cornea generally has its beginning at puberty and is found more frequently among females than males; for this reason the weakening of the cornea which allows it to become stretched and thinned is believed by some to be due to

nutritional changes brought about by the nervous phenomena incident to puberty.

Bradfield emphasizes the fact that it is only in the early stages of the disease, before the cornea has become too markedly conical, that treatment other than operative will accomplish any good. Hence early diagnosis is important. The ophthalmometer is of the greatest aid to us in detecting these cases in their early stages, as not only is astigmatism always present but the meridians of least and greatest curvature are not at right angles to each other. This instrument is also of great assistance in watching the progress of the condition, showing clearly, not only whether the astigmatism is increasing or decreasing, but also whether the curvature of the cornea in all its meridians is increasing or decreasing. For this reason it is wise always to note the radius of curvature and make record of it. Placido's disk is of much value, too, in detecting the early stages of keratoconus. As a rule the refraction of eyes with conical cornea is myopic. There are exceptions to this, however. Wuerdemann, several years ago, reported a case of double conical cornea where the refraction under homatropin was: O.D.—2.00 D.S. \ominus +7.00 D.C. ax. 75; O.S.+11.00 D.S.=+5.00 D.C. ax. 15, having 6/12 vision with either eye. This report called forth the reports, by different observers, of a number of other cases in which conical cornea was present with hypermetropic refraction.

That proper treatment is of great benefit when instituted early, before the cornea has been too much stretched, seems demonstrated by numerous reports. Hotz reports a case of double conical cornea in which the refraction of one eye changed in about two years from—2.00 D.S. \ominus —3.00 D.C. ax. 180 to +5.00 D.C. ax. 180, with improvement of the vision from 20/70 to 20/30 and disappearance of the cone. Bradfield says treatment should begin by correcting any errors in the general health, following good hygienic principles, rest of the eyes from all use requiring prolonged accommodation, and correction of errors of refraction by appropriate lenses. Great care should be exercised in correcting the errors of refraction as there is often a high degree of astigmatism present, the correction of which improves the vision very materially. One writer reports a case accepting —17.00 D.S. \ominus +32.00 D.C. ax. 10 and with this correction had 20/20 vision and was entirely comfortable. It is only in the early stages of the disease that much success can be hoped for in reducing the ectasia. When the cornea has been

greatly stretched and thinned for some time it cannot be restored to anything like normal, and often the astigmatism is so irregular that the vision is very poor and cannot be improved much with any glass. In such cases operative measures are to be thought of. These may be either the excision of the apex of the cone, suturing the edges of the corneal wound together or the use of the thermo-cautery by which it is hoped to secure a flattening of the cone through the contraction of the tissue as the wounds heal. There appears to be a difference of opinion as to whether it is wise to perforate the cornea with the cautery or whether Descemet's membrane should be left intact. It would seem preferable not to perforate the cornea with the cautery and to do paracentesis in the healthy corneal tissue, thus avoiding the danger of infection of the intraocular tissues, and at the same time giving the wound an opportunity to heal without bulging, by keeping the intraocular tension low by frequently doing a paracentesis. Some very good results have been reported as being secured by both the excision and cautery methods.

Congenital dislocation of the lens is generally supposed to be due to a faulty development of the zonule of Zinn by which the support of the lens is weakened or entirely absent in certain parts, allowing it to be drawn away from that part toward a position where the suspensory ligament is more developed. Parsons, in "The Pathology of the Eye", says: "The condition has been attributed to fluidity of the vitreous, failure of the suspensory ligament, etc., (v. Graefe, Quaglino). The frequency of displacement upwards suggests some relationship to the closure of the secondary optic vesicle, and this view is supported by observations on cases in which the hyaloid artery persists and the vitreous undergoes atypical development (Hess, Treacher Collins). In the latter condition fibrous bands are formed in the lower part of the vitreous in relation with the foetal cleft; these not only displace the lens upwards, but may also pull it backwards. They are formed very early in foetal life, so that it is not improbable that they may entirely disappear before birth, the displacement of the lens alone remaining (Hess). Samelsohn's conjecture, that the lens invaginates the primary optic vesicle at an abnormal situation, is not supported by these observations, and would probably lead to much more extensive anomalies." The most usual direction for displacement of the lens is upwards, and generally the two lenses are displaced in the same direction. My case is rather unusual in that both lenses were displaced downward.

As to treatment, where vision is not too greatly impaired, it is best to be content with as accurate a correction of the error of refraction as possible. In certain cases a carefully done iridectomy may secure better vision. In children or young adults dissection may bring about the absorption of the lens and enable the patient to see better with the proper glass. David McKeown suggests the advisability of needling the lens for the purpose of making it opaque and thus relieving the monocular diplopia. It is to be feared that cosmetic considerations would make at least some patients dissatisfied after such a procedure had been followed. Only in exceptional cases is an operation for the extraction of a congenitally dislocated lens to be considered, as the difficulties to be overcome in such an operation are great and the chances of undue loss of vitreous should make even a bold operator hesitate.

SUCCESSFUL TREATMENT OF GONORRHOEAL CHORIOIDITIS BY VACCINES.

George W. Vandergrift (*Jour. A. M. A.*, June 8, 1912) reports a case of metastatic gonorrhoeal chorioiditis which recovered under vaccine treatment. When first seen by the author the vision of the right eye had fallen to 10/200, while that of the left eye was 20/20. The vitreous of the right eye was heavily clouded with opacities. After these had cleared sufficiently the optic nerve was found to be normal, but a yellowish mass could be seen in the lower nasal quadrant of the choroid, projecting into the vitreous. He gave a negative history as to syphilis, tuberculosis and rheumatism and tests for the first two named diseases were negative. He gave a history of having had three attacks of gonorrhoeal urethritis, however, the first ten years ago, the second six years ago and the third one year ago. The complement fixation test for gonorrhoeal infection was strongly positive. Accordingly he was treated with mixed vaccines (gonococci and staphylococci). After three injections, at several days intervals, massage of the prostate, which previously had shown large numbers of gonococci, now showed none. After several weeks treatment the vitreous began clearing and in about three months' time the exudate was entirely absorbed and the vision of the affected eye was 20/20. No other treatment than the vaccines was employed except the use of atropin locally.

EXTRAORDINARY ALTERATIONS IN THE CORNEAL
EPITHELIUM OF A GLAUCOMATOUS EYE.

BY ADOLF ALT, M.D.,
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The eyeball presenting the alterations in the corneal epithelium which in the following are described, I owe to the kindness of Dr. M. Wiener. All of the history I could obtain was that the patient had come to the office of Dr. Wolfner with a glaucomatous attack in an eye previously blinded by glaucoma, and that this eye was removed a few hours later by Dr. Wolfner. In view of the interesting findings it is particularly unfortunate that the history of the case is so meager.

There was a deep old glaucomatous excavation and all the other well known pathological conditions of glaucoma, which, however, besides a recent infiltration of the whole uveal tract and of the optic nerve, presented nothing of especial interest.

Before I embedded the eye for section cutting, I was struck by the peculiar appearance of the cornea. A milky looking thickening was noticeable on its surface, reaching from the corneoscleral margin toward its centre in the upper half of the eyeball, which I thought was a pannus. In the lower half the surface of the cornea appeared quite irregular.

On section the pannus-like thickening of the upper half proved to be made up of dense connective tissue, containing a number of bloodvessels near Bowman's layer, on which this newly formed tissue rested. The tissue thus interposed between epithelium and Bowman's layer at the periphery has the thickness of half the cornea, and grows thinner toward the centre of the cornea where it ends somewhat abruptly.

In the absence of any history, it seems quite impossible from the sections alone to explain this peculiar connective tissue growth. It is not like what we find in spring catarrh, neither is it similar to an atrophic pterygium. It appears, however, not unlikely that it is a strangely thick and fibrous pannus—unless, perhaps, the connective tissue has grown into the cavity of a very large epithelial vesicle.

This view receives some strength by the conditions found in the lower half of the cornea.

Here what little of the conjunctiva has remained at the per-

iphery of the cornea is very much infiltrated with leucocytes, with some plasma cells between them. Near the periphery the corneal epithelium is slightly lifted up from Bowman's membrane in several minute places by small amounts of round cells and a very thin layer of connective tissue cells. Somewhat farther toward the centre there is a vesicle the anterior wall of which is formed by the stretched corneal epithelium, the posterior wall by Bowman's layer, which appears perfectly intact (See Fig. 1). In this vesicle no fluid contents can any longer be made out, but there is a thin connective tissue membrane which is folded up in such a manner that it may before sectioning have, perhaps, lined the inner surface of the vesicle.

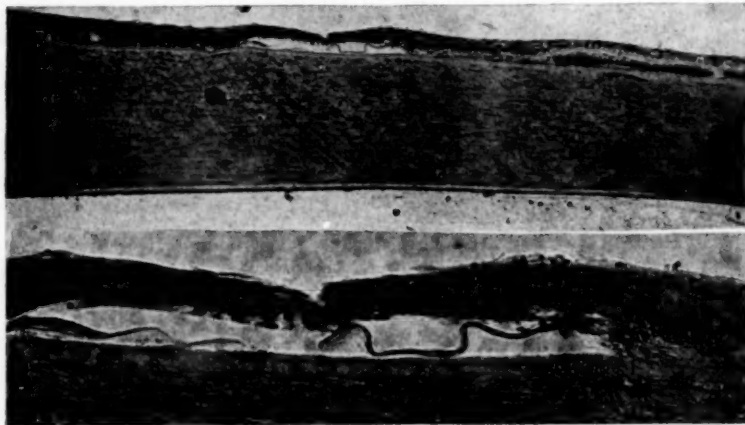


FIG. 1.

At the central periphery of the vesicle this membrane is in direct continuation with an appreciable amount of connective tissue which is at first situated between epithelium and Bowman's membrane. A little further on this small amount of connective tissue is, together with the surface epithelium, lifted up and separated from Bowman's layer by several layers of epithelial cells. Thus there are in this part two distinct and separate covers of epithelium lying on the intact Bowman's layer, and divided from each other by a small amount of connective tissue. Further inward the inner epithelial cover is broken up into pieces which in the sections appear very much like the pegs of an epithelioma. In this part the substance which separates the cell nests is rather homogeneous and contains but few connec-

tive tissue cells, which lie just upon Bowman's layer. Still further inward there is a ruptured vesicle, the anterior wall of which is lost. (See Fig. 2.)

Like Bowman's layer, the parenchyma of the cornea appears unaltered throughout.

Vesicular formations on the cornea are observed in the course of a facial herpes, and are usually called keratitis vesicularis, although there is no proof of any inflammatory condition being present in the corneal parenchyma. Larger vesicles, so-called bullæ, are especially formed in the corneal epithelium of eyes otherwise diseased, especially in the corneal epithelium of glaucomatous eyes. Under the assumption of a definite keratitis this

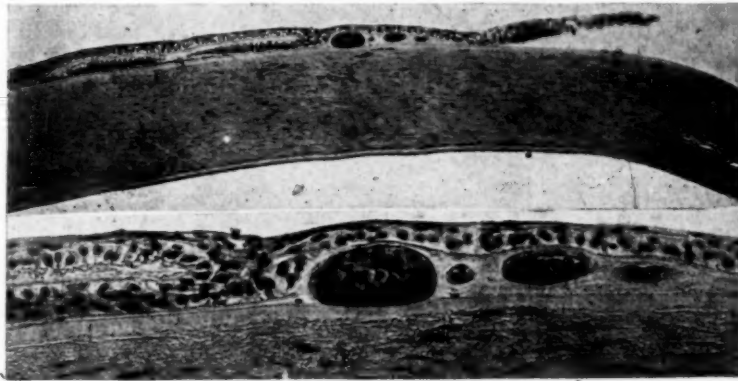


FIG. 2.

condition is called keratitis bullosa. The cornea of the eye here described shows no evidence whatever of a keratitis. In this eye the affection had for its field of operation the epithelium only, unless we can assume that the high intraocular pressure forced fluid through the corneal parenchyma and Bowman's layer under the epithelium, which with an absolutely intact endothelium on Descemet's membrane is certainly not probable.

While a small amount of connective tissue in such corneal vesicles has previously been found by Fuchs, Collins and others, a condition of the corneal epithelium as found in this eye and probably due to a peculiar cicatrization following the formation of corneal vesicles has, as far as I know, not been encountered thus far.

THE THIOCYANATES IN THE BODY FLUIDS.

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The first action of the thiocyanates in the body fluids is the simple one of chemical solvent. This action takes place in the saliva during mastication and digestion. The gelatinous and mineral substances of the food are thus acted upon and rendered more soluble and assimilable. Without this action certain necessary food elements cannot enter the system in the essential physiological form. Without the thiocyanates in proper physiological amounts in the body fluids, certain essential constituents are caused to be continually precipitated somewhere within the body, while others are excreted in abnormal amounts, as for instance, the precipitation of calcium, magnesium and silicon in union with the fatty acids and gelatinous substances in cataracts, opacities and scar-tissue in the eye, and such systemic diseases as arteriosclerosis, chronic syphilis, chronic insanities and other chronic conditions where the cells have been filled with a deposit of these substances from a slight clouding to a deep solid infiltration. This produces a changed cellular action which may be any condition from a slightly changed physiology to a complete cessation of function. In the second instance, I call attention to the large amount of calcium and magnesium that is to be found in the urine of those suffering from chronic forms of pulmonary tuberculosis and other chronic conditions. In all these chronic conditions the thiocyanates are found in greatly reduced amounts or *more often found to be absent*. The more chronic the condition the more certain I am to find the body fluids absolutely free from the thiocyanates.

I must repeat, with growing emphasis, the statements made in former articles published in the JOURNAL and elsewhere, in regard to the physiological and the therapeutical uses of these salts in the body fluids.

I wish to speak further of the physiological use of the thiocyanates in the body fluids. If one wishes to enjoy life and to be free from many serious chronic forms of disease the thiocyanates must be present in the body fluids in amounts equal to that found in the body fluids of a young, healthy, rapidly growing girl of sixteen years. This is the standard which I have found to give the best returns in the afflicted, and also the standard

which I have found to be near Nature's requirements, after examining many thousand people, young and old, sick and well, and of all colors and nationalities. This I found also to be the standard in every person of greatly advanced age whose body fluids I have examined for the thiocyanates. In these cases the thiocyanates were always found to be present in large amounts equalling that found in a vigorously healthy girl. In cases of extreme old age, it is often quoted that tobacco and the alcoholics were active agents in promoting longevity! This is most absurd! These poisons, I have found are very active in reducing the amount of the thiocyanates in the body fluids, and in all those cases referred to, the simple truth of this matter is, that in spite of the poisons the vigorous, active body of the person produces an unusual amount of the thiocyanates. And in all cases the healthy, vigorous action of the *glandular system* is to be noted. The thiocyanates are produced by the glands of the mouth from certain radicles or molecules derived from certain vegetables, as follows: garlic, leeks, onions, horseradish, mustards, radishes, turnips, that is the skins of young tender ones, and all allied vegetables.

This matter has been carefully studied for a space of many years, and the results of the experiments repeatedly noted in examinations of the blood and body fluids.

I have also found that in all cases of heredity examined, and they were many, the thiocyanates played a very important part, always being absent in both parents, as well as in the children. This fact is deserving of the most exacting academic study.

The total absence of the thiocyanates in the body fluids of all cases of chronic forms of disease, especially where there has been a continual drain upon the body fluids, is in itself very significant, and extremely suggestive. I know of only two exceptions in chronic diseases, in certain heart diseases of the aged, and in all cases of tumor or where there is a rapid proliferation of cellular elements, that is, where there is a rapidly growing abnormal growth of any description; in these cases the thiocyanates are found in excessive amounts in the body fluids. When the thiocyanates are absent from the saliva, they are not to be found in any of the body fluids. Conversely, when they are present in the saliva they are to be found in all the body fluids.

For the past five years I have been pursuing with increasing care the study of the thiocyanates in the normal, as well as in the diseased human being, and I have learned that when these

powerful acting poisons are administered to the chronic invalid after the plan which I have so often mentioned, there is absolutely no danger to the patient. In using the thiocyanates as remedial agents, one must ever keep in mind that to effect a cure it is of vital importance to observe the *requisite physiological time*. We of this day and age of rapid, strenuous, pit-pat methods of living and of doing business do not care to take up with anything which may require *time* to perform; oh no! We want that which is instantaneous in effect, never stopping to think that it requires twenty-four hours to make a day; three hundred sixty-five days to make a year. As the Creator required time to create all things, especially the Human Being, I have learned that He designed such a thing as *Physiological Time* for changes to take place in the human body. It no less requires time for the cell to become clouded with deposits or precipitation of the combinations of the earthy minerals with fatty acids and gelatinous substances, thus producing the initial step in much of our pathology. It also requires time for conditions to pass from this initial stage to where the cell has become packed with this deposit, changing the cell action and thus its physiology. In all chronic diseased conditions the cells have passed through all varieties of this change, the resulting changed physiology we are wont to recognize as various symptoms and stages of disease. Now, I have learned that this continuous retrograde movement from healthful life, through changing physiology, to complete stagnation in the cell or organ *may be reversed in action* by the proper administration of the thiocyanates after the plan suggested in my published articles. The precipitation is checked. The deposit is resolved and removed from the cell, and as this process takes place the primitive action of the cell is resumed again, and the physiology of that cell returns towards the normal as the cell clears! This statement no doubt sounds extreme; but I think it reasonable, so I will go farther,—I will add to it another startling announcement of equal import. It is this: After the clouded, opaque and “dead” cells have been given the suggested form of treatment, and after the grosser deposits have been dissolved and removed from the once disabled cells or organs, there remains absolutely no evidence, neither scar nor other defect, that may give an examiner the faintest clue concerning the character of the original diseased condition!

I am in a position to offer satisfying proof, which, I am sure

will substantiate every statement I have made in my published articles on the subject. For the past five years I have been pursuing this study in my private practice, and I have had several hundred patients take my form of treatment.

Case 1.—Male, 32, a miner by occupation. During some trouble at the mines he was hit in the right eye with a chunk of slate. The eyeball was cut in a diagonal direction from above outwards and downwards, on the inner aspect of the eye, just involving the pupillary edge of the iris, then continued downward through the sclerotic portion to a distance below the iris.* See the illustrations. He at once bound the eye up in its own blood and in due time when the wound was healed he discovered that he was nearly blind, and within the following six months he lost completely the vision of that eye. The eyeball was covered with a thick yellowish-white scar tissue, and the ball was turned towards the right and was immovable. He came to me on September 20, 1910, nearly three years after the accident. At that time the eye presented the appearance as shown in cut No. 1. The scar tissue was of a dark, dirty yellowish color and the fixed position of the eyeball gave him quite a startling appearance. Because of this, I was consulted as to the removal of the eye and the proper substitution of an artificial one. He could not see any reflection or shadow when looking at the sun, even when an object passed between it and his eye, but, upon testing the eye with the high frequency current, placing the electrode on the eye, he could distinguish considerable difference in the field of vision. I at once told him of the treatment with the thiocyanates, and promised him some degree of vision if not complete restoration of his normal sight. He stood and laughed at me, saying that he had been to see noted specialists in Columbus, Cincinnati, and elsewhere, and that all these men had told him the same thing, 'that is to have the eye removed lest he should also lose the sight in the other eye. Upon promising him that we would operate upon the slightest indication of trouble in the left eye, we gained consent to try the treatment for six months. In six weeks he reported being able to see an increasing ray of light which appeared at a right angle to the face, about forty-five degrees upward, that is at a point where the closed fist would be if one should elevate his arm at right angle to the body, the fist elevated above the shoulder and on a line with the face. This ability to perceive light increased steadily and as the light grew in volume it passed forwards and down-

wards toward the normal plane of vision. This queer fact is true of all cases of blindness resulting from either traumatism or cataract that are under my treatment. After the third month the eye commenced to work in unison with its mate, and soon thereafter resumed its normal motion. In six months the scar-tissue or infiltration covering the corneal surface, was nearly all resolved and removed. The dirty yellowish color changed to a pure white, then to a bluish white, then to a very delicate tint of pale blue, and then faded away, not unlike a piece of clear hard frozen ice melting in the presence of a gentle degree of heat. (See No. 2.) The broad scar appeared with much prominence, while it and the traumatic cataract were of a yellowish color, and the former seemed to resolve more quickly at the upper end than anywhere else. As the



FIG. 1.

FIG. 2.

scar disappeared the cellular structures of the eye exhibited no trace of the injury. The eye becoming clear and normal, the *iris resuming its normal action* as it became free from the scar-tissue. Nor can one detect any remains of the scar-tissue! Here I wish to say that in all my cases under treatment for blindness, as soon as vision returns so that the patient can distinguish small objects, the individual seems to lose power to judge aright as to whether or not he may or may not be improving, that is he cannot judge as to the degree of improvement at any time during the treatment. Therefore, accurate visual test examination must be made from time to time.

After twelve months treatment No. 3 was taken. The patient could read the headlines on newspapers or any large print. He could distinguish friends at a distance of fifty feet. The iris cleared at the upper end of the scar, and where it was free from

the deposit the iris appear to be perfectly normal in looks and in action. The lens was clearing from without inwards and gave the decided appearance of the edge of a small piece of ice. The deep yellowish color of the central portion of the lens changed towards the outer edge, to a white, then a pale bluish white, then to a transparent ice-like substance, through which he could see with ease. This disappearance of the cataractous substance in the lens was more rapid from the outer upper edge than it was from the inner lower edge. The patient was and has remained in the best of health and at no time did he take medicines or drugs of any kind, other than the treatment outlined in my articles on the thiocyanates.

As the end of the eighteenth month of treatment, No. 4 was drawn by the artist. Now the appearance of the eye had

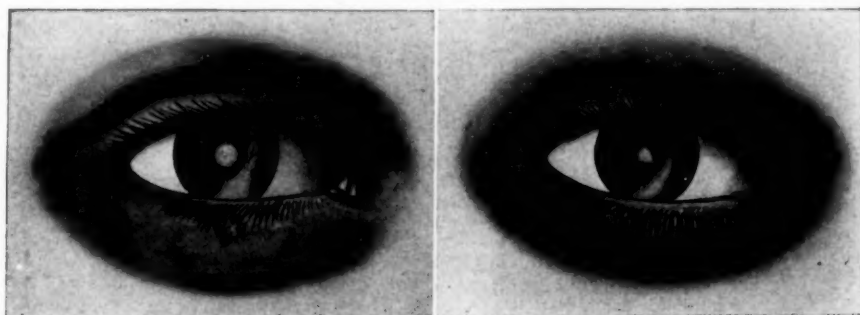


FIG. 3.

FIG. 4.

changed considerable, the scar had been resolved nearly one-half, the upper portion looked like a faint milky streak, and the portion of the iris held in bond by the scar seemed to buckle up in its endeavors to free itself. The scar throughout its entire length was growing smaller and smaller at the same time that it became white in color, then bluish-white and then a pale blue color just as did the cataract. In fact they passed in successive stages through the same color changes. Now the cataract had become triangular in appearance and was of a pure white color in the densest part but, towards the edge could be seen the thin ice-like transparent portion with its thin sharp edge, and as I have said he could see through this part with ease. He could read any large print and did so with impunity, and without any harm whatever.

Near the end of the second year of treatment the artist drew

No. 5. The scar tissue had nearly disappeared and the iris was acting in an imperfect manner. The cataract had changed its shape and while yet triangular in form the angles had shifted their position. The color of the cataract was now a pale blue. The patient could see through the denser part and distinguished very large objects.

The treatment continued as outlined in my preliminary articles, and on April 1, 1912, I had the artist draw picture No. 6. The scar tissue had almost vanished. The iris, where it became free from the binding interference of the scar tissue, acted in a perfectly natural manner, and where it was still involved in the scar, the tiny muscles buckled up in quite a comical manner in endeavors to get free. This movement of the iris was in itself slight and had to be examined closely to detect it. The precipi-



FIG. 5.

FIG. 6.

tation in the lens became almost resolved. The shape of the lens had changed to a small triangular shaped dot which lay about midway between the center of the pupil and the lower edge of the iris when the latter was dilated. This dilating was performed in an irregular manner, the upper and outer portions reacting naturally, but the inner lower section of the iris was prevented from moving by the scar. Upon examining the eye with the ophthalmoscope I found that the cataract had become resolved in the greater part, but there remained a portion shaped like a dumbbell. The outer end of this dumbbell was fastened to the anterior capsule on a plane with the edge of the iris below the pupil. The other end was fastened to the posterior capsule at a place above the pupil, so that the patient was able to get vision between these two portions, and further, the *handle* of the thing was very thin and faintly outlined in shape. The

color of this portion was clear like pure hard frozen ice and offered no obstruction to his vision.

This man is still under treatment, and I shall, from time to time report to the readers of the JOURNAL any further progress he makes.

Case 2.—Final report of a case previously published. Child, aged 7, was infected at birth producing *ophthalmia neonatorum*.

After much trouble the physician saved the sight of the left eye, but lost totally the sight in the right one. The child was two years old when brought to me for treatment. At that time the right eye was covered with a dirty yellowish looking scar. This scar covered nearly the whole of the front aspect of the eyeball, and was what is popularly called a "chalk-eye". I had a photograph taken of him at the time treatment began, but from it I learned that photographs do not show up the details.

I tested for vision in this eye in every way possible and became convinced that he could not see even the rays from the noon-day sun, nor from the high frequency current. After results confirmed me in this belief. The child was in almost perfect health, judging outward appearances, yet I failed to demonstrate the presence of the thiocyanates in the blood or in any of the body fluids. I gave him a 1.1000 aqueous solution of the sodium thiocyanate. One teaspoonful in water after each meal. By analyzing the body fluids frequently, and by increasing the strength of the solution I caused the thiocyanates to appear in his blood in a slight degree above that which is normal in a young, healthy, rapidly growing girl of sixteen years of age. I endeavored to keep the content of the salt in the blood at this amount. The results of this treatment encouraged me to administer also a collyrium of the same strength as the internal medication. At no time did he complain of smarting or pain. This treatment was continued for three years in a spasmodic manner. In fact so irregular was the treatment that I despaired of obtaining good results; yet, the most excellent results were obtained. I am informed by his mother that he has recovered completely the use of the eye; that there is no trace of the scar tissue and that she had had the eye tested and failed to discover any defect. This I readily believe, for when I examined the boy last, the scar tissue had been resolved and removed, and the remaining opacity was nearly cleared.

Case 3.—Male, 65. In railway service. Came to me after being examined by the Company's oculist. He said that he was

told that he had a cataract in both eyes, and that he would be forced to resign his position. He was also informed that he would be forced to wait until the cataracts were ripe before he could be given much relief. Being a poor man, the thoughts of losing his position troubled him greatly.

I found that he was afflicted with nuclear cataracts. He at once commenced treatment as outlined in Case No. 2, and in eighteen months thereafter he was again examined by the Company's oculist. He failed to demonstrate any sign of cataracts. The doctor seemed puzzled, and told the patient that the cataracts would return again in a few months and that he would be forced to watch him. After two years the man is still free from any signs of cataract.

Case 4.—Woman, 68, senile cataracts of the laminated variety. The spokes of the cataracts were causing the patient much trouble by interference with her vision. She being a dressmaker and obliged to work for her living was very anxious indeed. She was placed upon the same form of treatment, and within a year she ceased to complain of the interference of vision and now after nearly two years treatment there are but slight remains of the cataracts. Her eyes were becoming clear, bright and youthful in appearance, the latter due no doubt to the fact that her eyes are of a deeper color than before treatment.

Case 5.—Woman, 36, had trouble with her eyes for many years. When she first presented herself to me she was an object to be pitied. Thin, scrawny, and almost totally blind, she was led into my office by her little child. Her eyes were both practically in the same condition, that is, both were dry as an old scab, covered with the dry remains of an old chronic inflammation; the eyes had the appearance of dead fish eyes. The opacities gave the eyes a dirty leaden color, which appeared in places through the dry dirty yellow of the scar tissue. The lids were deeply inflamed and inverted so that the short eye-lashes were ever scraping against the eyeballs. All structures in both eyes were as dry as punk, producing a very unpleasant object to look upon. The pain and misery which this woman must have suffered is beyond calculation. She had visited many specialists, had spent much money, but had received the same results from all, her money gone and conditions gradually growing worse. She had but little faith in medical men, and hinted that if she failed to receive help this time, that life would not be worth living. My examination was painstaking and exhaustive. I

was careful and endeavored not to blunder, and while I gave encouragement I was cautious in what I said to her. Her history was free from specific taint. She had had the pink-eye and from this her trouble dated when about fifteen years of age.

The body fluids failed to show the least trace of the thiocyanate. No evidence of any other trouble or disease than that of her eyes. She was given the same form of treatment as described. The collyrium contained 1/10 grain of pilocarpine hydrochlorid to eight ounces of the wash, and enough NaCl to make a normal salt solution in addition to the sodium thiocyanate to make a 1.1000 aqueous solution. She was to use the wash four times a day or oftener if necessary to give her ease and comfort. Internally she was given a 1.1000 aqueous solution, as in the other cases, one teaspoonful in water after each meal. Results: In four weeks she reported (she lives at a distance) that her eyes became moist and continued so to be, after the first five days. At the end of the second month she presented herself at my office. Her eyes were naturally moist, causing a vast change in the appearance of her condition. She had been diligent in removing the eye-lashes as directed, and had used the wash every two hours. I found that the thiocyanates were in the body fluids in a very faint degree, so I greatly increased the amount of these salts in both wash and internal medication. In four weeks she appeared at my office and I certainly was greatly pleased at the improved condition in which I found her. I was obliged to increase the strength of each solution, owing to the fact that her blood-pressure still remained high and that the reaction of the thiocyanates in her body fluids was not up to the standard which I have found to give the best results therapeutically. She could see well enough so that she attended to her own household work, and was able to get around without a guide!

So far I have given only cases where the blood-pressure was above the normal, and where the simple exhibition in the blood of the patient of the required amount of the thiocyanates caused a lowering of the blood-pressure and the resolving of the precipitation and deposits of the gelatinous combination of the earthy salts with the fatty acids, which I have found is the substance which clouds and clogs the cells. All these cases with high blood-pressure are very easy and simple to handle. A cure is effected in every case! But, in many similar cases where we may have a low or sub-normal blood-pressure this form of treat-

ment will cause the most alarming symptoms if not death! Here I bring into play the known functions of the duct-less glands, producing even more brilliant results in many of the so-called incurable diseased conditions. In none of the cases reported have I given any other drug or medicine unless stated. It is imperative to have the teeth in perfect order, and to instruct the patient how and why mastication of his food should be well done. The faithful following of these two mandates by the patient, usually removes one of the many troublesome conditions, that of *constipation*, we have to meet in these cases. Otherwise I depend entirely, as stated above, on the action of the thiocyanates in the body fluids.

IS THERE TOXIC ACTION OF NEOSALVARSAN ON THE PAPILLO-MUSCULAR BUNDLE?

Gebb (*Medizinische Klinik*, September 1, 1912) reviews the arguments of those authors who aver that the irritation of certain cranial nerves after injection of salvarsan is due to its neurotropic action; he maintains that it is due to the syphilitic virus. This relapse of the infection after salvarsan injection Ehrlich calls *Neurorezidiv*. Salvarsan is much better than mercury iodide treatment since the latter influenced the syphilitic lesions in his patients in a less degree than the salvarsan, which brought about *restitutio ad integrum* in a few weeks. In a number of his patients the diseased papillomuscular bundle was rapidly influenced for the better. If salvarsan were toxic for this nerve, as Cohen asserts, then the author reasons that in his own cases where this bundle of nerves was involved much more damaging results would have to be expected. The opposite result was obtained. The irritated papillomuscular bundle was soon well and sight returned to the normal in a short time. Therefore there can be no injury to the nerve elements of the eye by salvarsan, and the hyperemia of the nerve sheath of the optic nerve or retinal hæmorrhages or central scotoma after salvarsan injections are merely the *neurorezidivs* of Ehrlich. Since Ehrlich's preparations do not cause injury to the eye, he was justified in speaking of the harmlessness of the preparations.—*N. Y. Med. Jour.*

MEDICAL SOCIETIES

PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

December 12, 1912.

Dr. Wendell Reber in the Chair.

Altitudinal Hemianopsia, Unilateral and Bilateral.—Dr. Luther C. Peter.

Dr. Peter reported two cases which were in some ways unique:

One of unilateral altitudinal hemianopsia, due to embolism of the inferior artery of the retina; in a 30 year old married woman with characteristic history of embolism. Pupils equal, react to light, accommodation, and consensually; eyes steady under cover. Wernicke's phenomenon is incomplete. All external ocular muscle movements good.

Fields in right eye somewhat contracted, especially for form. In the left eye there is some slight contraction for form and color in the inferior half, with total blindness above, running horizontally above the center. Heart and renal conditions are normal. Patient's general build is frail, and she reports that at time of visual failure her health was not up to par.

The restoration of the upper half of the retina was due in all probability to the anatomic arrangement of the vessels and the location of the embolus, thus allowing the blood to pass gradually into the superior vessels, while the inferior branches remained closed. The macular region was not included in the blind area.

The other case was one of binocular superior hemianopsia occurring in a 41 year old married woman.

As to the location of the lesion the facts in the case pointed to the inferior surface of the chiasm. Bilateral superior hemianopsia followed promptly by atrophy of the inferior half of the optic nerves must necessarily be in or about the optic chiasm. The sudden appearance, also atrophy of the optic nerve following the development of the hemianopsia, points to a lesion well forward, either in the chiasm or anterior to the chiasm. Anæ-

thesia of the left face, arm and hand at the time of onset, suggests a disturbance well back in the tracts near the peduncles, or primary optic centers. As the patient was profoundly neurasthenic it may have been but another phase of her functional disturbance when she discovered the blindness in her upper fields. If organic in origin, it is not difficult to conceive a gummatous basal meningitis involving the chiasm and extending back towards the peduncles or the primary optic centers.

A comparative study of the fundus changes in these cases is interesting in contrast. The changes in the disc and retina of the unilateral case are entirely nutritional in origin. The dividing line is well marked in the disc, and even in the size of the vessel, the inferior arteries being little more than one half the size of the superior vessels. This is in marked contrast to the second case, which furnishes a picture of post-neuritic atrophy. The pallor in one-half the nerve head is common to both cases, but in the latter the disc is not clear, the edges being veiled and the porous opticus invisible, while the arteries and veins are fairly uniform throughout.

DISCUSSION.

Dr. Posey recalled that loss in the field of a hemianopic type sometimes results from vascular changes in the nerve itself or from pressure of atheromatous vessels upon the nerve. He said that of course no pure chiasmal lesion could occasion a complete loss of vision in the whole of the upper fields of both eyes, as the nasal halves would necessarily be uninvolved. To explain a loss such as had occurred in Dr. Peter's case, it was necessary to look for a lesion either anterior or posterior to the chiasm. He referred at some length to the loss in the upper fields of vision following chiasmal disease and to the value of x-ray study in determining the nature of the lesion. Even vague shadows obtained from radiographs should be regarded as positive findings. Operation by the method recently devised by Frazier gave more promise of relief than earlier procedures.

Dr. Zentmayer said loss of one-half of the field of vision due either to retinal changes or to optic atrophy is not unusual. "I recall a case of obstruction to the central artery of the retina in which recovery of the superior half of the field occurred rather late. Similar defects are found to be quite common in amblyopia resulting from general hæmorrhages. I have elsewhere reported an interesting case of so-called inferior hemianopsia.

Following long continued attacks of temporary obscuration the inferior field finally became permanently blind. The upper half of the optic nerve is atrophic. The superior half of the opposite eye is now having repeated attacks of obscuration. The cause here is probably arteriosclerosis of the ophthalmic artery producing pressure upon the nerve at the point of entrance into the orbit.

It would be better not to use the term hemianopsia in such cases especially where there are similar defects in the two eyes, and this term should be limited to symmetrical half field blindness due to a central lesion."

Reflex Symptoms Resulting From Low Degree of Muscle Imbalance.—Dr. Leighton F. Appleman.

Dr. Appleman's communication had to do with hyperphoria only.

Patients often show only a shade of vertical deviation with the Maddox rod for distance, but if the test includes an estimation of the muscle status at the reading distance, an error of 1 to 2 or more degrees may become manifest. If then a prism of $\frac{1}{4}$ or $\frac{1}{2}$ of the strength found be placed before the eye, together with the Maddox rod, and the patient be directed to gaze on the light, he will often show a perfect balance. In other words he is suffering from latent hyperphoria, which is just as potent in causing reflex symptoms as is latent hyperopia and astigmatism. As in hyperopia and astigmatism, it is often the small error of $\frac{1}{2}$ or $\frac{3}{4}$ of a degree which prevents an otherwise perfect result from the use of glasses.

Of a series of 181 cases prescribed for during the last 15 months, 64 were given correction for hyperphoria, and of these, only 13 were given a prism of over 1 degree, leaving a balance of 51 who showed hyperphoria of less than 1 degree. All these patients expressed a distinct sense of relief, as though a strain were taken off the eyes when the prism was put on over their correction, and subsequent reports have shown continued relief from their symptoms.

The conclusions to which I have come, as a result of the study of these cases, is: (1) That many persons suffer for years with headaches and reflex symptoms for which they have been drugged, and their glasses changed many times, without attention to the muscle balance, and therefore without the relief

which should attend their use. (2) That patients suffer from latent hyperphoria just as much as from latent hyperopia and astigmatism. (3) That the recognition and correction of low degrees of vertical imbalance, in addition to their refractive error, is of the utmost importance to the comfort of the patient.

DISCUSSION.

Dr. Zentmayer: Whether or not to order prisms in low vertical errors before finding out whether the correction of the refractive error alone will not do away with the symptoms of which the patient complains must be decided by one's own experience. Dr. Appleman speaks of the change in the refraction in his cases as having been insufficient to produce the symptoms of which the patient complained and that therefore the small vertical muscular anomaly was taken into consideration. I do not believe it possible to determine whether or not the change in the refraction was the cause without first having made the necessary change in the glass. We all know it is often the smallest errors that produce the most pronounced symptoms. My own practice has been and is to ignore hyperphorias under $2\frac{1}{2}$ degrees in first ordering glasses. I have rarely ever had to incorporate a prism because the correction of the refraction error failed to relieve the symptoms. I believe that I have not ordered prisms for errors of this degree in ten cases in 25 years of practice. I attribute this to doing the refraction work under complete cycloplegia induced by atropin and ordering the glasses while the effects of the drug was still active. Of course higher degrees may require correction and tenotomy is a very suitable means of treating such cases. I think that in rare instances the hyperopia increases after partial correction with prisms. I believe these cases to be due to congenital palsies with contractures which perhaps relax after prisms have been worn for a time. I have removed far more prisms than I have ever put on.

Dr. Posey said that several years ago he had made a clinical study of 287 cases of hyperphoria and had found that when properly searched for, hyperphoria of 1 degree or more will be found to exist in about 13 per cent. of all cases of refraction. Latent hyperphoria is of frequent occurrence and develops quite independently of age. He had found that the correction of errors of refraction is not sufficient in the majority of cases to bring about a disappearance of any existing hyperphoria, as he

had observed that hyperphoria makes itself manifest the longer the glasses are worn, the increase in the hyperphoria occurring whether the vertical prisms have been incorporated into the formula or not. While he was somewhat sceptical regarding some of the reflexes which eyestrain was supposed to originate, it had been his experience that the hyperphoria frequently gives rise to headache, that of the supraorbital variety predominating. In a small proportion of cases, it will be unilateral, usually on the same side as the eye with the poorest vision. Typical attacks of migraine may be expected in about 5 per cent. of all cases of hyperphoria. A symptom of frequent occurrence and of great value in directing attention to the hyperphoria consists in an associated reflex in the supply of the facial nerve. This may manifest itself either in a unilateral twitching of the lids, as in nictitation, or more rarely by a pronounced blepharospasm.

He decried the use of prisms in all cases, prescribing them only when they seemed particularly indicated, and then only partially correcting the error. He would not, however, like to practice ophthalmology without the use of prisms.

Dr. Peter's experience was that the vertical prism was of great use in properly selected cases when the refractive correction had proved insufficient and there was no general disorder to account for the residual symptoms.

Dr. Sweet: "I don't use a great many prisms and I never use prisms base in or base out, but I do use prisms base up and base down. I never give a prism at the first test, I always watch them until they wear their glasses for a while. If I find they have 1 degree of hyperphoria I always give them a 1 degree prism."

Dr. Reber: "At a first examination I think it is rather foolhardy to rush in with vertical prisms. Other things being equal I think it is the part of wisdom to give the patient a full chance with the refractive correction; but where there is a hyperphoria of $1\frac{1}{2}$ degrees to 2 degrees that is producing symptoms when good refraction has been unavailing, I would give them half of their infinity correction. I think it is a mistake to give them the full correction at once; if there is a total of 2 degrees I should not give them more than 1, and there is no question but that the average person who puts on prisms will later show a greater hyperphoria than when prisms were first put on. My own case is a beautiful illustration. I had no trouble in showing $1, 1\frac{1}{2}$.

then 2 and finally $2\frac{1}{2}$ degrees of hyperphoria. I have reached, I think, my full degree of hyperphoria, and have now worn the same vertical prism ($2\frac{1}{2}$ degrees) for 9 years. I think there is nothing truer than the existence of latent hyperphoria. I myself have seen many cases that show at first but $\frac{1}{2}$ degree, and have shown as much as $1\frac{1}{2}$ to $2\frac{1}{2}$ degrees in 10 minutes by uncovering tests to break up fusion. If that is not latent hyperphoria, what is it? As to unequal hyperphoria in the two eyes, certain patients will show higher hyperphoria in one eye than the other, which I believe indicates some slight degree of paresis of the superior rectus in the hyperphoric eye. There is no end to the reflexes that may be set up by hyperphoria, the commonest ones being probably the gastric ones."

D. FOREST HARBRIDGE, M.D.,
Secretary.

EDITORIAL NOTICE.

We wish to draw the attention of our readers to the forthcoming *American Encyclopedia of Ophthalmology*, which is being edited by Dr. Casey A. Wood. Associated with him are a large number of collaborators. It is Dr. Wood's intention to produce a work which will supersede anything of a similar scope published heretofore, a complete ophthalmic library in itself, in about ten volumes. The Cleveland Press, Ogden Avenue and Lincoln Street, Chicago, Ill., solicits an early subscription. The price of each volume will be \$5.00, \$6.00 or \$7.50, according to the binding. The first volume is to appear early in May.

ABSTRACTS FROM MEDICAL LITERATURE.

By J. F. SHOEMAKER, M.D.,
ST. LOUIS, MO.

THE PRESENT STATUS OF THE CATARACT OPERATION.

(Part I. *Ætiology.*)

S. D. Risley (*Penn. Med. Jour.*, November, 1912) takes up the ætiology of senile cataract in Part I. of his paper on this subject, and shows "that the present status of the operation for the removal of the opaque lens must rest largely upon the result of this inquiry; that is, upon our views as to ætiology." He calls attention to the impression given by most writers of text-books of ophthalmology that senile cataract is one of the unavoidable incidents occurring in old age. All authors recognize what are known as "complicated cataracts" as being caused by iritis, iridocyclitis, choroiditis, etc., and also agree in attributing to diabetes and other systemic affections an important part in the production of cataract, but the cause of the ordinary senile cataract, occurring in "healthy persons and in otherwise healthy eyes" is unexplained by them.

The difficulty, if not impossibility, in the early stages of a cataract, while the fundus and vitreous can still be studied, to differentiate, by ophthalmoscopic examination, between a cataract due to diabetes or some other systemic condition and one that occurs in a person not having any such disease, convinces the author that there is not so much difference in them nor in the causes producing them. It is well known that the healthful nutrition of practically all the tissues of the eye is largely dependent upon the vascular choroid; but none of them suffers more in diseases of the choroid than the avascular parts,—the vitreous, lens and cornea. Thus the nutrition of the lens is very likely to suffer in diseases of the uvea. "While this clinical association is so obvious in the vast majority of cataracts, even in old people, the explanation of how the nutritional change in the lens is accomplished is by no means clear. Since the nutrient pabulum in health is secured by imbibition, it is probable that the colloidal supply from an inflamed tissue, as in uveitis from

any cause, is so changed in chemical and physical character that it can no longer pass through the capsule or the suspensory system of the lens as in health." From his years of careful observation of local conditions in cases suffering with cataract and also close study of systemic states associated therewith, Risley has "come to regard every study of choroidal and retinal disease, whether associated with opacity of the lens or not, as incomplete which does not include also a study of systemic conditions. Cardiovascular disease, auto-intoxication and specific infections are common etiologic factors in the choroidoretinal disease of which the lens opacity is a sequel. This reasoning finds corroboration in the fact that cataract is essentially an affection of advanced years. It occurs at a time of life when wear and tear is manifested in protean forms—faulty metabolism, a sclerotic vascular tree, nephritis, impaired digestion, auto-toxemia and high blood pressure; a time of life when the results of overwork, harassments, faulty and vicious habits and hereditary trends begin to show their ravishments upon the organism in the form of dyscrasias. The uveal tract of the eye seems especially prone to participation in these functional misfortunes. As sequels to this participation we have certain forms of glaucoma, iritis, degeneration of the vitreous, opacity of the lens. It is only in this sense that cataract is to be regarded as a concomitant of old age." "The modern status of the cataract, operation therefore rests upon our recognition of the essentially pathologic character of the affection; that it occurs not because the individual is old but because of local disease which, in a large percentage of the cases, is a sequel of some general dyscrasia."

READING A BOOK-PAGE INSTANTANEOUSLY: A CASE OF UNIQUE VISUAL POWER.

George M. Gould (*Jour. A. M. A.*, July 6, 1912) reports the case of a man who could read a page of an ordinary book at a glance. By fixing the gaze on the center of the page, the whole page at once came into view, was seen clearly and fixed distinctly in his memory so that he could recall it at will. He could thus read instantly page after page of a book, reviewing several books in an evening, and was able to pick out at a glance what to his mind were the essential points or sentences in a page. Nor did he appreciate the fact that he was doing anything unusual, but tried to convince his associates that they could do the same thing.

Gould says he was a man of exceptional learning, having a highly trained mind and an almost faultless memory. These things were essential for him to do what he did, and yet many a person might have these and it still be an optical impossibility for them to see all that was on a page to recognize it. In the case reported the man had sometime during middle life lost the central vision of his right, *dominant*, eye by an attack of central chorioiditis. The persistent effort of this eye still to continue its function, Gould believes, educated and trained the cells of the retina surrounding the macula so that they could accurately perceive and transmit to the brain all that was on a page except that part which should have been seen by the macula. The image of the left eye being exactly superimposed upon that of the right eye, supplied the macular defect so that the entire page was seen clearly. That it is possible for the retina surrounding the macular region thus to become more acutely sensitized, is proven, the author thinks, by the well known fact that a new macula is often formed at some distance from the true macula when the latter has been destroyed. He believes it impossible for any person with normal maculae in both eyes to have "such a marvelous extension of synchronous and perfect peripheral vision as was illustrated in this case. That is possible only when one macula is destroyed, with retention of the perfect peripheral portions."

STRABISMUS IN CHILDREN.

E. A. Heimann (*Archiv. für Kinderheilkunde*, May 11, 1912) says that it is possible to correct squint without an operation only when treatment is begun when the squint first develops. Hence the importance of testing the eyes under atropin as soon as convergent squint is noticed, and full correcting lenses should be worn constantly. Exercises with the amblyoscope may be used when the child is three or four years of age and kept up for several weeks. He advocates operating as early as the fifth year if the other means fail to correct the squint to within at least 15 degrees, or if vision of the one eye is imperfect. Divergent squint almost invariably requires an operation, although the author has succeeded in correcting one case of incipient outward squint in four weeks by the use of amblyoscope exercises and correcting lenses.

ENDONASAL TREATMENT OF EYE DISEASES.

P. Stenger (*Therapie der Gegenwart*, June, 1912) refers to the growing appreciation of the relationship between nasal and ocular diseases and the benefit that may be obtained in certain diseases of the eyes by appropriate treatment of the nasal or accessory sinus conditions. Acute inflammation in the orbit, in the lacrimal canal, glaucoma, cataract and optic neuritis may all be secondary to some nasal disturbance. He gives examples of how failing vision may rapidly be restored in ethmoidal sinusitis by treatment of this condition. He believes that incipient glaucoma might frequently be helped by proper treatment of the nose as he has found some pathologic condition of the corresponding side of the nose in every case of glaucoma he has examined.

BOOK REVIEWS.

THE PITUITARY BODY AND ITS DISORDERS. Clinical states produced by disorders of the hypophysis cerebri. By Harvey Cushing, M.D. 319 illustrations. Philadelphia and London: J. B. Lippincot Co.

The medical profession owes a debt of gratitude to the brilliant author of this book, in which he has recorded the results of his carefully conducted researches in this interesting and important field.

The clinical part of the book is preceded by chapters on the anatomy, physiology and chemistry of the pituitary gland, which are excellent and convincing in their arguments based on experiments on animals. Yet, the chief interest of the book lies in its clinical part in which the author's experiences with disturbances of the function of the pituitary body and the often brilliant results of their surgical treatment are detailed. The ophthalmologist is especially interested in these on account of the ophthalmoscopic symptoms and the alterations of the visual fields encountered in such cases. Print and illustrations are as excellent as the text of this pre-eminently valuable book.

LEHRRUCH DER AUGENHEILKUNDE. (Text-book of Ophthalmology.) Edited by Theodor Axenfeld (with 11 collaborators). Third edition, with 12 plates, 3 colored plates and 554 illustrations in the text. Jena: Gustav Fischer, 1912. Price 15 marks.

Axenfeld's Text-book of Ophthalmology is before us in the third edition, and although it seemed hardly possible to improve on its predecessor, this edition is still somewhat in advance of the second one.

In view of the excellency of this text-book it is to be hoped that it may before long be translated into the English language so as to bring it to the direct knowledge of a larger number of ophthalmologists and students.

ELECTRICITY IN DISEASES OF THE EYE, EAR, NOSE AND THROAT.
By W. Franklin Coleman. Toronto, Canada: The Courier-Herald Press. 1912.

The author of this exhaustive treatise on the application of electricity in its different forms in diseases of the eye, ear, nose and throat has at different occasions before this broken a lance for this, as he thinks, neglected part of therapeutics. His enthusiasm, evidently based on careful study, is certainly admirable, even if we cannot agree with him in every part. What makes this book particularly valuable is the record of a large amount of earnest research work of a conscientious scholar. Therefore, much good may undoubtedly come from its perusal by the practitioners in the special branches to whom it is addressed and also by the general practitioner.

There is no doubt that we have a powerful remedy in electricity and that its scientific application may be of value when other modes of treatment seem to fail. It is, however, not generally known that electricity can with benefit be used in the treatment of almost all pathological conditions, and that is probably where the author's enthusiasm leads him astray.

DIE SEHSCHAEFERE DES MENSCHEN UND IHRE PRUEFUNG. (The visual acuity of man and its tests.) A physiologic-ophthalmologic study. By Dr. Leopold Loehner. Leipzig and Wien: Franz Deuticke. 1912.

In this book the author has laid down the results of careful

and intrinsic studies concerning the visual acuity and the tests best adapted to get its correct measure. He comes to the conclusion that double dots are the best test object. The numerous experiments and their convincing results must be read in the original to be fully appreciated.

DIE ANOMALIEN DER SKLERALSPANNUNG. (The anomalies of scleral tension.) By Dr. Hugo Stransky. Volume I: Glaucoma inflammatorium; The aged eye; The scars of the sclera; Glaucoma simplex (first part). Leipzig and Wien; Franz Deuticke. 1912.

The author of this very interesting treatise, the first part of which has thus far only reached us, is satisfied that the tension of the sclera has not been given the consideration which it deserves, in his opinion, in the explanation of simple glaucoma, as well as some other affections. He adduces an enormous amount of material in order to prove his contention, and in the reviewer's opinion he has admirably succeeded. We await the coming continuation of his work with the firm conviction that he has increased and will still further increase our knowledge of the pathology of this hitherto so poorly explained affection.

ALT.